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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,930	09/26/2003	Ulrich Bonne	H0004978(1100.1208101)	8299

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EXAMINER
MOSS, KERI A

ART UNIT	PAPER NUMBER
1743	

MAIL DATE	DELIVERY MODE
04/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/671,930	BONNE ET AL.	
	Examiner	Art Unit	
	Keri A. Moss	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2007 and 02 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 22-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 22-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action follows the decision by the Pre-Brief Appeal Conference to reopen prosecution. Claims 1-10 and 22-30 are pending.

Response to Amendment

Examiner's rejection of the drawings has been withdrawn in light of applicants' arguments.

The rejection under 35 USC 112, 2nd paragraph has been withdrawn in light of applicants' arguments.

In response to applicant's arguments the rejections under Geis and Manginell have been withdrawn.

The rejections under Bonne and Kubisiak have been maintained.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims **1-2, 5-6, 22-24, 28-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonne (USP 6,393,894). Bonne discloses a fluid sensor comprising a concentrator (Fig. 6 part 124); a separator connected to the concentrator (Fig. 6 part 126); a phased heater array having a first plurality of heating elements situated in the concentrator (Fig. 7 parts 168a-d) and a heating element situated in the separator (Fig.

7 part 170); a ratio control mechanism (Fig. 7 part 180) for changing the ratio of concentrator heating elements relative to separator heating elements (Fig. 8); the ratio control mechanism and the controller connects to the phased heater array (Fig. 7) and a first detector connected to the separator (Fig. 7 part 164). Figure 8 shows that the ratio control mechanism (part 180) and the controller (part 130) change the ratio of active concentrator heater elements to separator heating elements from 1:1 to 0:1. A micro discharge mechanism is located proximate to the first detector (Fig. 9 outlet below part 264; column 4 lines 14-19) and connected to the controller (Fig. 9). It is inherent that the sensor in Bonne comprises a processor connected to the detector as the detector cannot be read without one. Since a processor is inherently connected to the detector, it is also connected to the concentrator, separator, micro discharge mechanism and anything else connected directly or indirectly to the detector. It is also inherent that the processor comprises switches and control logic. A controller (Fig. 6 part 130) is connected to the concentrator and separator and is capable of changing the ratio of concentrator heating elements to the separator heater element (Fig. 8). The concentrator may be a pre-concentrator as there may be an unlimited number of phased heater arrays (Fig. 8). The heater elements apply heat in a sequential phased manner to the concentrator (Fig. 3). The detector may be a thermal-conductivity detector (Fig. 6 part 128). A flow sensor is connected to the concentrator (Fig. 8; column 7 lines 19-30).

Bonne does not expressly disclose a plurality of heater elements in the separator. *In re Harza* 274 F.2d 669, 124 USPQ 378 (CCPA 1960) teaches that it is

well settled that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. The prior art of *In re Harza* taught one rib whereas the claims at issue claimed a plurality of ribs. Id. at 381. In the instant case, Bonne teaches a single heater element in the separator whereas Applicant claims a plurality of heater elements. Bonne teaches that the separator heater element separates the constituent gasses into individual constituent components. The expected result of providing a plurality of heater elements is a more precise separation of the components. Therefore, it would have been obvious to one of ordinary skill in the art to increase the number of heater elements in the separator in order to have a more precise separation of components in the gas.

3. Claims **3-4, 8-10 and 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonne, as described supra, in view of Kubisiak (USP 6,169,965). Bonne does not disclose a second detector or a flow sensor. Nor does Bonne teach a processor on a separate board from the concentrator, separator and phased heater array.

With regard to claims **3-4,** Kubisiak discloses a detector 210 (Fig. 4) and a flow sensor 222 (Fig. 4), both connected to a processor 430 (column 9 lines 43-53; Fig. 9) comprising switches (Fig 9) and control logic (column 10 lines 10-13). Detector 210 is used to measure fluid properties (column 7 lines 43-45), whereas 222 is used as a flow sensor (Column 7 lines 49-50). Kubisiak teaches that the flow sensor may be located upstream or downstream of the heating element (column 8 lines 61-65). An advantage

of using the Kubisiak system is that the processor 430 uses the data from the heater and the sensors to determine phase lags between the signals as well as fluid properties such as pressure or temperature. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Bonne sensor structure with the teachings of using processor and switches of Kubisiak in order to control the timing of the activation of the different heating elements and to gain the additional advantage of determining the phase lag and fluid properties.

With respect to claims **8-10 and 25-27**, Bonne does not teach a sensor wherein the concentrator, separator and phased heating elements are on a separate board from the processor. Kubisiak discloses a system in which the heaters and sensors are on a board separate from, but connected via wire bonds to, a board containing the processor, switches and control logic. While it appears that Kubisiak does not separate the heating elements from the processor, it would have been obvious to one or ordinary skill in the art to make separate the heaters from the processor to prevent overheating of the processor.

Response to Arguments

4. Applicant's arguments, see After Final Amendment and Pre Appeal Request for review, filed January 2, 2007 and February 2, 2007, with respect to the Geis and Manginell references have been fully considered and are persuasive. The rejection has been withdrawn.

5. Applicant's arguments filed January 2, 2007 and February 2, 2007 with respect to the Bonne reference have been fully considered but they are not persuasive.

Applicant requested clarification regarding what the Examiner based the interpretation of Boone teaching changing a ratio of active concentrator heater elements to separator heating elements from 1:1 to 0:1. The Examiner gleaned this reading of Boone from Figure 8 in light of Figure 7. Figure 7 shows the heater control logic blocks 180 and 166 connected to the heaters of the concentrator and separator. Figure 8 shows the activation of each heater in the concentrator represented by bumps in the horizontal line (parts 194, 198 and 200). The activation of the separation heater is designated by bump 196. When one bump shows up on one of the horizontal lines for heaters 1-3, the ratio of activation of concentrator to separator is 1:1 at that timepoint. When no bump appears, i.e. the space between bumps 194 and 198, the ratio of activation of concentrator to separator heater elements is 0:1, as no heater in the concentrator is activated. In summary, Figure 8 shows a ratio of activation of concentrator to separator heater elements of 0:1 and 1:1 and Figure 7 shows the ratio control mechanism that controls that action.

The immediately preceding argument also explains that Bonne teaches a ratio control mechanism.

Applicants argue that Bonne does not appear to teach anything regarding a micro discharge mechanism. Examiner has cited the outlet in Figure 9 located below part 264. The referenced outlet is a micro discharge mechanism because it is

microscopic in size and actively discharges the fluid from the chip. The cited Column 4 lines 14-19 explains indirectly that the chip is microscopic.

Applicants argue that the plurality of heating elements are not mere duplicates. Applicant's arguments are not convincing and do not differentiate the instant claims from Bonne.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keri A. Moss whose telephone number is 571-272-8267. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keri A. Moss
Examiner
Art Unit 1743

KAM 4/24/07

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